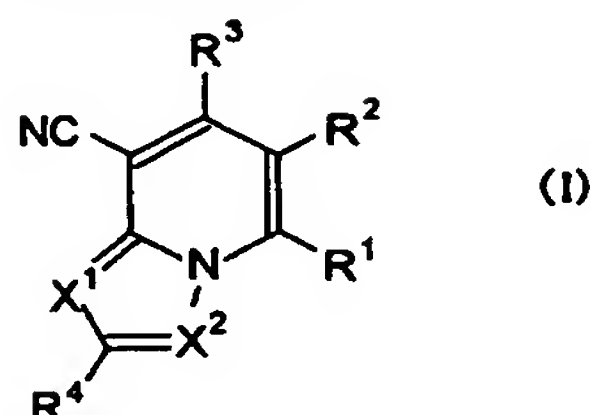


## Claims

1. A compound represented by the following formula (I), a salt thereof, or a solvate thereof

5 [Formula 62]



[in the formula,

$R^1$  means a basic group which may have a substituent,

$R^2$  means

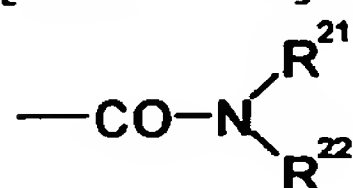
10 hydrogen atom,

halogen atom,

carboxy group,

a group represented by the following formula

[Formula 63]



15

(in the formula,  $R^{21}$  and  $R^{22}$  each independently represents hydrogen atom, an alkyl group having from 1 to 6 carbon atoms or an aryl group having from 6 to 10 carbon atoms),

an alkyl group having from 1 to 6 carbon atoms,

an alkenyl group having from 2 to 6 carbon atoms,

20 an alkynyl group having from 2 to 6 carbon atoms,

an acyl group having from 2 to 7 carbon atoms,

an alkoxy carbonyl group having from 2 to 7 carbon atoms,

a cycloalkyl group having from 3 to 6 carbon atoms,

a cycloalkenyl group having 5 or 6 carbon atoms,

25 a cycloalkylalkyl group having from 4 to 12 carbon atoms,

an aryl group having from 6 to 10 carbon atoms,

an aralkyl group having from 7 to 12 carbon atoms,  
a monocyclic, bicyclic or spiro cyclic heterocyclic group having from 2 to 10 carbon atoms  
(contains from 1 to 4 hetero atoms of 1 or more species selected from the group consisting of  
nitrogen atom, oxygen atom and sulfur atom),

- 5 a heteroaryl group having from 3 to 10 carbon atoms, or  
a heteroarylalkyl group having from 3 to 12 carbon atoms,  
wherein when R<sup>2</sup> is an alkyl group, an alkenyl group, an alkynyl group, an acyl group or an  
alkoxycarbonyl group, these may have 1 or more groups of 1 or more species selected from  
[substituent group 2-1] as the substituent;

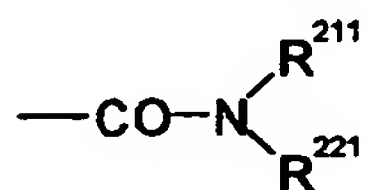
- 10 [substituent group 2-1]:

halogen atom,  
amino group,  
imino group,  
nitro group,

- 15 hydroxy group,  
mercapto group,  
carboxy group,  
cyano group,  
sulfo group,

- 20 a dialkyl phosphoryl group,  
a group represented by the following formula

[Formula 64]



- (in the formula, R<sup>211</sup> and R<sup>221</sup> each independently represents hydrogen atom, an alkyl group having  
25 from 1 to 6 carbon atoms or an aryl group having from 6 to 10 carbon atoms),  
an alkoxy group having from 1 to 6 carbon atoms,  
an alkylthio group having from 1 to 6 carbon atoms,  
an acyl group having from 2 to 7 carbon atoms,  
an alkoxycarbonyl group having from 2 to 7 carbon atoms,

a cycloalkyl group having from 3 to 6 carbon atoms,

an aryl group having from 6 to 10 carbon atoms, and

an arylthio group having from 6 to 10 carbon atoms

wherein amino group of the [substituent group 2-1] may have 1 or 2 groups, as the substituent,

5 selected from the group consisting of formyl group, an alkyl group having from 1 to 6 carbon atoms, a hydroxyalkyl group having from 1 to 6 carbon atoms, a mercaptoalkyl group having from 1 to 6 carbon atoms, an acyl group having from 2 to 7 carbon atoms, an alkoxycarbonyl group having from 2 to 7 carbon atoms, a cycloalkyl group having from 3 to 6 carbon atoms, an aryl group having from 6 to 10 carbon atoms, an aralkyl group having from 7 to 12 carbon atoms, an  
10 aromatic heterocyclic group, an alkylsulfonyl group having from 1 to 6 carbon atoms and an arylsulfonyl group having from 6 to 10 carbon atoms, in addition, when said amino group has 2 substituents, they may be bonded together to form a cyclic structure;

hydroxy group of the [substituent group 2-1] or mercapto group of the [substituent group 2-1] may

have a substituent selected from the group consisting of an alkyl group having from 1 to 6 carbon

15 atoms, an aminoalkyl group having from 1 to 6 carbon atoms, a hydroxyalkyl group having from 1 to 6 carbon atoms, a mercaptoalkyl group having from 1 to 6 carbon atoms, an acyl group having from 2 to 7 carbon atoms, a cycloalkyl group having from 3 to 6 carbon atoms, an aryl group having from 6 to 10 carbon atoms, an aralkyl group having from 7 to 12 carbon atoms and an aromatic heterocyclic group;

20 when  $R^2$  is a cycloalkyl group, these may have 1 or more groups of 1 or more species selected from [substituent group 2-2] as the substituent;

[substituent group 2-2]:

halogen atom,

amino group,

25 imino group,

nitro group,

hydroxy group,

mercapto group,

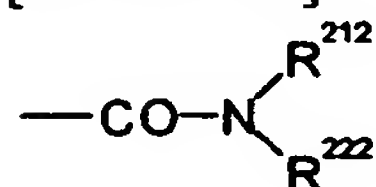
carboxy group,

30 cyano group,

sulfo group,

a group represented by the following formula

[Formula 65]



- 5 (in the formula,  $\text{R}^{212}$  and  $\text{R}^{222}$  each independently represents hydrogen atom, an alkyl group having from 1 to 6 carbon atoms or an aryl group having from 6 to 10 carbon atoms),  
an alkoxy group having from 1 to 6 carbon atoms,  
an alkylthio group having from 1 to 6 carbon atoms,  
an acyl group having from 2 to 7 carbon atoms, and  
10 an alkoxycarbonyl group having from 2 to 7 carbon atoms;  
amino group of the [substituent group 2-2] may have 1 or 2 groups, as the substituent, selected from the group consisting of formyl group, an alkyl group having from 1 to 6 carbon atoms, a hydroxyalkyl group having from 1 to 6 carbon atoms, a mercaptoalkyl group having from 1 to 6 carbon atoms, an acyl group having from 2 to 7 carbon atoms, an alkoxycarbonyl group having  
15 from 2 to 7 carbon atoms, a cycloalkyl group having from 3 to 6 carbon atoms, an aryl group having from 6 to 10 carbon atoms, an aralkyl group having from 7 to 12 carbon atoms, an aromatic heterocyclic group, an alkylsulfonyl group having from 1 to 6 carbon atoms and an arylsulfonyl group having from 6 to 10 carbon atoms, in addition, when said amino group has 2 substituents, they may be bonded together to form a cyclic structure;  
20 when  $\text{R}^2$  is an aryl group, an aralkyl group, a heteroaryl group or a heteroarylalkyl group, these may have 1 or more groups of 1 or more species selected from [substituent group 2-3] as the substituent;  
[substituent group 2-3]:  
halogen atom,  
25 amino group,  
imino group,  
nitro group,  
hydroxy group,  
mercapto group,

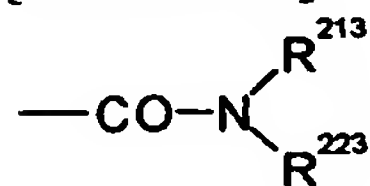
carboxy group,

cyano group,

sulfo group,

a group represented by the following formula

5 [Formula 66]



(in the formula,  $\text{R}^{213}$  and  $\text{R}^{223}$  each independently represents hydrogen atom, an alkyl group having from 1 to 6 carbon atoms or an aryl group having from 6 to 10 carbon atoms), an alkoxy group having from 1 to 6 carbon atoms, an alkylthio group having from 1 to 6 carbon atoms, an acyl  
10 group having from 2 to 7 carbon atoms, an alkoxycarbonyl group having from 2 to 7 carbon atoms, an aralkyloxy group having from 7 to 12 carbon atoms, an aralkyloxycarbonyl group having from 8 to 15 carbon atoms, an aryl group and a monocyclic, bicyclic or spiro cyclic heterocyclic group having from 2 to 10 carbon atoms (contains from 1 to 4 hetero atoms of 1 or more species selected from the group consisting of nitrogen atom, oxygen atom and sulfur atom);

15 amino group of the [substituent group 2-3] may have 1 or 2 groups, as the substituent, selected from the group consisting of formyl group, an alkyl group having from 1 to 6 carbon atoms, a hydroxyalkyl group having from 1 to 6 carbon atoms, a mercaptoalkyl group having from 1 to 6 carbon atoms, an acyl group having from 2 to 7 carbon atoms, an alkoxycarbonyl group having from 2 to 7 carbon atoms, a cycloalkyl group having from 3 to 6 carbon atoms, an aryl group  
20 having from 6 to 10 carbon atoms, an aralkyl group having from 7 to 12 carbon atoms, an aromatic heterocyclic group, an alkylsulfonyl group having from 1 to 6 carbon atoms and an arylsulfonyl group having from 6 to 10 carbon atoms, in addition, when said amino group has 2 substituents, they may be bonded together to form a cyclic structure;

when  $\text{R}^2$  is a heterocyclic group, it may have 1 or 2 groups selected from the next [substituent  
25 group 2-4] as the substituent;

[substituent group 2-4]:

halogen atom,

amino group,

hydroxy group,

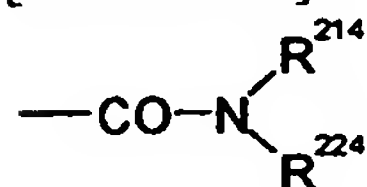
mercapto group,

carboxy group,

sulfo group,

a group represented by the following formula

5 [Formula 67]



(in the formula,  $\text{R}^{214}$  and  $\text{R}^{224}$  each independently represents hydrogen atom, an alkyl group having from 1 to 6 carbon atoms or an aryl group having from 6 to 10 carbon atoms),

an alkyl group having from 1 to 6 carbon atoms,

10 an alkenyl group having from 2 to 6 carbon atoms,

an alkynyl group having from 2 to 6 carbon atoms,

an alkoxy group having from 1 to 6 carbon atoms,

an alkylthio group having from 1 to 6 carbon atoms,

a halogenoalkyl group having from 1 to 6 carbon atoms,

15 an acyl group having from 2 to 7 carbon atoms,

an alkoxycarbonyl group having from 2 to 7 carbon atoms, and

an aryl group having from 6 to 10 carbon atoms;

wherein amino group of the [substituent group 2-4] may have 1 or 2 groups, as the substituent,

selected from the group consisting of formyl group, an alkyl group having from 1 to 6 carbon

20 atoms, a hydroxyalkyl group having from 1 to 6 carbon atoms, a mercaptoalkyl group having from

1 to 6 carbon atoms, an acyl group having from 2 to 7 carbon atoms, an alkoxycarbonyl group

having from 2 to 7 carbon atoms, a cycloalkyl group having from 3 to 6 carbon atoms, an aryl

group having from 6 to 10 carbon atoms, an aralkyl group having from 7 to 12 carbon atoms, a

monocyclic, bicyclic or spiro cyclic heterocyclic group having from 2 to 10 carbon atoms

25 (contains from 1 to 4 hetero atoms of 1 or more species selected from the group consisting of

nitrogen atom, oxygen atom and sulfur atom), an aromatic heterocyclic group, an alkylsulfonyl

group having from 1 to 6 carbon atoms and an arylsulfonyl group having from 6 to 10 carbon

atoms, in addition, when said amino group has 2 substituents, they may be bonded together to form

a cyclic structure;

in addition, R<sup>1</sup> and R<sup>2</sup> may together form a cyclic structure including the carbon atoms to which these are bonded, wherein this ring contains 1 or 2 hetero atoms of 1 or more species selected from the group consisting of nitrogen atom, oxygen atom and sulfur atom, and the structural moiety to be formed herein may be saturated or unsaturated;

5 R<sup>3</sup> means

hydrogen atom,

halogen atom,

amino group,

hydroxy group,

10 mercapto group,

nitro group,

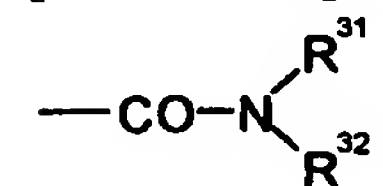
cyano group,

formyl group,

carboxy group,

15 a group represented by the following formula

[Formula 68]



(in the formula, R<sup>31</sup> and R<sup>32</sup> each independently represents hydrogen atom, an alkyl group having from 1 to 6 carbon atoms or an aryl group having from 6 to 10 carbon atoms),

20 an alkyl group having from 1 to 6 carbon atoms,

an alkenyl group having from 2 to 6 carbon atoms,

an alkynyl group having from 2 to 6 carbon atoms,

an alkoxy group having from 1 to 6 carbon atoms,

an alkylthio group having from 1 to 6 carbon atoms

25 an acyl group having from 2 to 5 carbon atoms,

an alkoxycarbonyl group having from 2 to 5 carbon atoms,

a cycloalkyl group having from 3 to 7 carbon atoms,

a cycloalkenyl group having from 4 to 7 carbon atoms,

an aryl group having from 6 to 10 carbon atoms,

an aralkyl group having from 7 to 12 carbon atoms,  
a heteroaryl group having from 3 to 10 carbon atoms;  
wherein said amino group, said hydroxy group or said mercapto group may be protected by a  
protecting group;

5 when  $R^3$  is an alkyl group, an alkenyl group, an alkynyl group, an alkoxy group, an alkylthio  
group, an acyl group, an alkoxycarbonyl group, a cycloalkyl group, a cycloalkenyl group, an aryl  
group, an aralkyl group or a heteroaryl group, these may have 1 or more groups of 1 or more  
species selected from [substituent group 3-1] as the substituent;

[substituent group 3-1]:

10 amino group,  
hydroxy group,  
mercapto group,  
halogen atom,

an alkoxy group having from 1 to 6 carbon atoms,

15 an alkylthio group having from 1 to 6 carbon atoms,  
an acyl group having from 2 to 5 carbon atoms, and  
an alkoxycarbonyl group having from 2 to 5 carbon atoms;

amino group of the [substituent group 3-1] may have 1 or 2 groups, as the substituent, selected  
from the group consisting of formyl group, an alkyl group having from 1 to 6 carbon atoms, a  
20 cycloalkyl group having from 3 to 6 carbon atoms, an aryl group having from 6 to 10 carbon  
atoms, an aromatic heterocyclic group, an acyl group having from 2 to 5 carbon atoms and an  
alkoxycarbonyl group having from 2 to 5 carbon atoms, wherein when said amino group has 2  
substituents, they may be bonded together to form a cyclic structure;

in addition,  $R^2$  and  $R^3$  may together form a polymethylene chain structure and form a 5-membered  
25 or 6-membered cyclic structure by including the carbon atoms to which  $R^2$  and  $R^3$  are to be  
bonded, this polymethylene chain may contain 1 or 2 hetero atoms of 1 or more species selected  
from the group consisting of nitrogen atom, oxygen atom and sulfur atom, and the polymethylene  
chain formed herein may have 1 or more groups of 1 or more species selected from [substituent  
group 3-2] as the substituent;

30 [substituent group 3-2]:



amino group,  
hydroxy group,  
mercapto group,  
halogen atom,  
5 an alkoxy group having from 1 to 6 carbon atoms,  
an alkylthio group having from 1 to 6 carbon atoms,  
an acyl group having from 2 to 5 carbon atoms, and  
an alkoxycarbonyl group having from 2 to 5 carbon atoms;  
amino group of the [substituent group 3-2] may have 1 or 2 groups, as the substituent, selected  
10 from the group consisting of formyl group, an alkyl group having from 1 to 6 carbon atoms, a  
cycloalkyl group having from 1 to 6 carbon atoms, an aryl group having from 6 to 10 carbon  
atoms, an aromatic heterocyclic group, an acyl group having from 2 to 5 carbon atoms and an  
alkoxycarbonyl group having from 2 to 5 carbon atoms, wherein when said amino group has 2  
substituents, they may be bonded together to form a cyclic structure;  
15 in addition,  $R^2$  and  $R^3$  may together form a polymethylene chain structure and form a 5-membered  
or 6-membered cyclic structure by including the carbon atoms to which  $R^2$  and  $R^3$  are to be  
bonded, and this polymethylene chain may contain 1 or 2 hetero atoms of 1 or more species  
selected from the group consisting of nitrogen atom, oxygen atom and sulfur atom,  
wherein the polymethylene chain formed herein may have 1 or more groups of 1 or more species  
20 selected from [substituent group 3-2] as the substituent;  
[substituent group 3-2]: amino group, hydroxy group, mercapto group, halogen atom, an alkoxy  
group having from 1 to 6 carbon atoms, an alkylthio group having from 1 to 6 carbon atoms, an  
acyl group having from 2 to 5 carbon atoms, and an alkoxycarbonyl group having from 2 to 5  
carbon atoms;  
25 amino group of the [substituent group 3-2] may have 1 or 2 groups, as the substituent, selected  
from the group consisting of formyl group, an alkyl group having from 1 to 6 carbon atoms, a  
cycloalkyl group having from 1 to 6 carbon atoms, an aryl group having from 6 to 10 carbon  
atoms, an aromatic heterocyclic group, an acyl group having from 2 to 5 carbon atoms and an  
alkoxycarbonyl group having from 2 to 5 carbon atoms, wherein when said amino group has 2  
30 substituents, they may be bonded together to form a cyclic structure; and

R<sup>4</sup> means

hydrogen atom,

halogen atom,

amino group,

5 hydroxy group,

mercapto group,

nitro group,

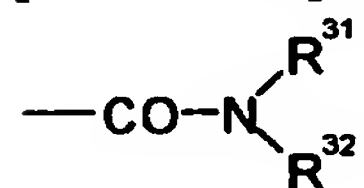
cyano group,

formyl group,

10 carboxy group,

a group represented by the following formula

[Formula 69]



(in the formula, R<sup>31</sup> and R<sup>32</sup> each independently represents hydrogen atom, an alkyl group having

15 from 1 to 6 carbon atoms or an aryl group having from 6 to 10 carbon atoms),

an alkyl group having from 1 to 4 carbon atoms,

an cyclic alkyl group having from 3 to 8 carbon atoms,

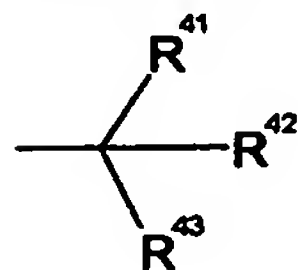
an aryl group having from 6 to 10 carbon atoms,

a heteroaryl group having from 5 to 9 carbon atoms,

20 an alkynyl group having from 2 to 6 carbon atoms, or

a group represented by

[Formula 70]



(in the formula, R<sup>41</sup> and R<sup>42</sup> each independently represents hydrogen atom, an alkyl group having

25 from 1 to 6 carbon atoms or an alkoxy group having from 1 to 6 carbon atoms, or both may

together form an exomethylene structure, and this exomethylene structure may further have an

alkyl group having from 1 to 6 carbon atoms, an alkoxy group having from 1 to 6 carbon atoms or a halogenoalkyl group having from 1 to 6 carbon atoms, as a substituent, and

R<sup>43</sup> means hydrogen atom, a halogen atom, hydroxy group, mercapto group, nitrile group, nitro group, carboxy group, an alkoxycarbonyl group having from 2 to 7 carbon atoms, an

5 alkylaminocarbonyl group having from 2 to 7 carbon atoms, an arylaminocarbonyl group having from 7 to 11 carbon atoms, a cycloalkylaminocarbonyl group having from 4 to 7 carbon atoms, an aralkylaminocarbonyl group having from 8 to 12 carbon atoms, an alkyl group having from 1 to 6 carbon atoms, a halogenoalkyl group having from 1 to 6 carbon atoms, a hydroxyalkyl group having from 1 to 6 carbon atoms, an aminoalkyl group having from 1 to 6 carbon atoms, an alkoxy  
10 group having from 1 to 6 carbon atoms, a cycloalkyl group having from 3 to 8 carbon atoms, a cycloalkyloxy group having from 3 to 8 carbon atoms, an aralkyl group having from 7 to 11 carbon atoms, or an aralkyloxy group having from 7 to 11 carbon atoms);

when R<sup>4</sup> is an alkyl group, a cyclic alkyl group, an aryl group or a heteroaryl group, and when R<sup>43</sup> is an alkyl group, these may have 1 or more groups of 1 or more species selected from [substituent

15 group 4] as the substituent;

[substituent group 4]:

halogen atom,

amino group,

nitro group,

20 hydroxy group,

mercapto group,

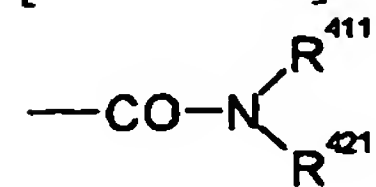
carboxy group,

cyano group,

sulfo group,

25 a group represented by the following formula

[Formula 71]



(in the formula, R<sup>411</sup> and R<sup>421</sup> each independently mean hydrogen atom, an alkyl group having from 1 to 6 carbon atoms or an aryl group having from 6 to 10 carbon atoms),

an alkoxy group having from 1 to 6 carbon atoms,  
 an alkylthio group having from 1 to 6 carbon atoms,  
 an acyl group having from 2 to 7 carbon atoms,  
 an alkoxycarbonyl group having from 2 to 7 carbon atoms,  
 5 an aralkyloxy group having from 7 to 12 carbon atoms,  
 an aralkyloxycarbonyl group having from 8 to 15 carbon atoms,  
 an aryl group having from 6 to 10 carbon atoms, and  
 a monocyclic, bicyclic or spiro cyclic heterocyclic group having from 2 to 10 carbon atoms  
 (contains from 1 to 4 hetero atoms of 1 or more species selected from the group consisting of  
 10 nitrogen atom, oxygen atom and sulfur atom);  
 amino group of the [substituent group 4] may have 1 or 2 groups, as the substituent, selected from  
 the group consisting of formyl group, an alkyl group having from 1 to 6 carbon atoms, a  
 hydroxyalkyl group having from 1 to 6 carbon atoms, a mercaptoalkyl group having from 1 to 6  
 carbon atoms, an acyl group having from 2 to 7 carbon atoms, an alkoxycarbonyl group having  
 15 from 2 to 7 carbon atoms, a cycloalkyl group having from 3 to 6 carbon atoms, an aryl group  
 having from 6 to 10 carbon atoms, an aralkyl group having from 7 to 12 carbon atoms, an aromatic  
 heterocyclic group, an alkylsulfonyl group having from 1 to 6 carbon atoms and an arylsulfonyl  
 group having from 6 to 10 carbon atoms, wherein when said amino group has 2 substituents, they  
 may be bonded together to form a cyclic structure;  
 20 hydroxy group or mercapto group of the [substituent group 4] may have a substituent selected  
 from the group consisting of an alkyl group having from 1 to 6 carbon atoms, an aminoalkyl group  
 having from 1 to 6 carbon atoms, a hydroxyalkyl group having from 1 to 6 carbon atoms, a  
 mercaptoalkyl group having from 1 to 6 carbon atoms, an acyl group having from 2 to 7 carbon  
 atoms, a cycloalkyl group having from 3 to 6 carbon atoms, an aryl group having from 6 to 10  
 25 carbon atoms, an aralkyl group having from 7 to 12 carbon atoms and an aromatic heterocyclic  
 group, wherein when R<sup>4</sup> is an alkynyl group, it may have an alkyl group having from 1 to 6 carbon  
 atoms, an alkoxyalkyl group having from 1 to 6 carbon atoms, a halogenoalkyl group having from  
 1 to 6 carbon atoms or carboxy group as a substituent;  
 X<sup>1</sup> and X<sup>2</sup> each independently mean  
 30 nitrogen atom or

- carbon atom which may be substituted with  
a halogen atom,  
an alkoxy group having from 1 to 6 carbon atoms,  
an alkyl group having from 1 to 6 carbon atoms which may have a substituent,  
5 an ester group, wherein either one of  $X^1$  and  $X^2$  is nitrogen atom;  
wherein the substituent of alkyl group is 1 or 1 or more groups selected from the following group  
of substituents;  
halogen atom,  
amino group,  
10 nitro group,  
hydroxy group,  
mercapto group,  
carboxy group,  
cyano group,  
15 an alkoxy group having from 1 to 6 carbon atoms,  
an alkylthio group having from 1 to 6 carbon atoms,  
an acyl group having from 2 to 7 carbon atoms,  
an alkoxycarbonyl group having from 2 to 7 carbon atoms,  
a cycloalkyl group having from 3 to 6 carbon atoms, and  
20 an aryl group having from 6 to 10 carbon atoms;  
when the substituents on carbon atoms are esters, these may be  
an alkyl ester having from 1 to 6 carbon atoms,  
an aryl ester having from 6 to 10 carbon atoms,  
or an aralkyl ester consisting of an alkyl group having from 1 to 6 carbon atoms and an aryl group  
25 having from 6 to 10 carbon atoms;  
in addition, the aryl moiety of these aryl esters and aralkyl groups may be substituted with 1 or 1  
or more groups selected from the following group of substituents;  
halogen atom,  
amino group,  
30 nitro group,

hydroxy group,

mercapto group,

carboxy group,

cyano group,

- 5 an alkyl group having from 1 to 6 carbon atoms,  
an alkoxy group having from 1 to 6 carbon atoms,  
an alkylthio group having from 1 to 6 carbon atoms,  
an acyl group having from 2 to 7 carbon atoms,  
an alkoxycarbonyl group having from 2 to 7 carbon atoms,  
10 a cycloalkyl group having from 3 to 6 carbon atoms, and  
an aryl group having from 6 to 10 carbon atoms].

2. The compound, a salt thereof, or a solvate thereof described in claim 1, wherein the basic group of R<sup>1</sup> is

- 15 (1) an amino substituted alkyl group having from 1 to 6 carbon atoms, which may have a substituent,  
(2) an amino substituted cyclic alkyl group having from 3 to 6 carbon atoms, which may have a substituent,  
(3) an aminocycloalkenyl group having from 3 to 6 carbon atoms, which may have a substituent,  
20 (4) an amino substituted aralkyl group wherein the binding region with the bicyclic nucleus is an aromatic ring, which may have a substituent,  
(5) an aminoalkyl substituted amino group having from 1 to 6 carbon atoms, which may have a substituent,  
(6) an amino substituted cyclic alkylamino group having from 3 to 6 carbon atoms, which may  
25 have a substituent,  
(7) an aminocycloalkenylamino group having from 3 to 6 carbon atoms, which may have a substituent,  
(8) an amino substituted aralkylamino group wherein the binding region with the bicyclic nucleus is an aromatic ring, which may have a substituent, or  
30 (9) a nitrogen-containing heterocyclic substituent, which may have a substituent;

wherein the amino group as the basic nature expressing group in the substituents of (1) to (8) may have 1 or 2 (may be the same or different when 2) of the substituents selected from the following substituent group [1-1];

substituent group [1-1]:

- 5 an alkyl group having from 1 to 6 carbon atoms, an alkenyl group having from 2 to 6 carbon atoms, an alkynyl group having from 2 to 6 carbon atoms, an alkoxycarbonyl group having from 2 to 7 carbon atoms, a cycloalkyl group having from 3 to 10 carbon atoms, a cycloalkenyl group having from 4 to 10 carbon atoms, and a group derived from an amino acid, a dipeptide or a polypeptide consisting of 3 to 5 amino acids;

- 10 also, when the substituent selected from the substituent group [1-1] is an alkyl group, an alkenyl group, an alkynyl group, an alkoxycarbonyl group, a cycloalkyl group or a cycloalkenyl group, these may have 1 or more of 1 or more groups selected from [substituent group 1-1-1];

[substituent group 1-1-1]: hydroxy group, mercapto group, a halogen atom, an alkoxy group having from 1 to 6 carbon atoms, an alkylthio group having from 1 to 6 carbon atoms and a

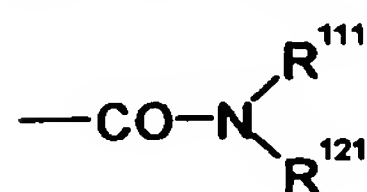
- 15 cycloalkyl group having from 3 to 10 carbon atoms;

in addition, the nitrogen-containing heterocyclic substituent of (9) preferably uses a carbon atom as the binding position, is saturated or partially saturated, and is a monocyclic, bicyclic or spiro cyclic heterocyclic group having from 2 to 10 carbon atoms (contains from 1 to 4 hetero atoms of 1 or more species selected from the group consisting of nitrogen atom, oxygen atom and sulfur

- 20 atom), and the substituent on this heterocyclic group may be selected from [substituent group 1-2];

[substituent group 1-2]: a halogen atom, amino group, hydroxy group, oxo group, a group represented by the following formula

[Formula 73]



- 25 (in the formula,  $\text{R}^{111}$  and  $\text{R}^{121}$  each independently represents hydrogen atom, an alkyl group having from 1 to 6 carbon atoms or an aryl group having from 6 to 10 carbon atoms), an alkyl group having from 1 to 6 carbon atoms, an aminoalkyl group having from 1 to 8 carbon atoms, an aminocycloalkyl group having from 3 to 8 carbon atoms, an alkoxy group having from 1 to 6



carbon atoms, an alkylthio group having from 1 to 6 carbon atoms, a halogenoalkyl group having from 1 to 6 carbon atoms and an alkylamino group having from 1 to 6 carbon atoms;

wherein the alkyl moiety of the alkyl group, alkylamino group, cycloalkylamino group, alkoxy group, alkylthio group, halogenoalkyl group or aminoalkyl group of the [substituent group 1-2]

5 may have 1 or more groups of 1 or more species selected from [substituent group 1-2-1];

[substituent group 1-2-1]: a halogen atom, hydroxy group, an alkyl group having from 1 to 6 carbon atoms, an alkoxy group having from 1 to 6 carbon atoms, an alkoxycarbonyl group having from 2 to 7 carbon atoms, an alkylcarbonylamino group having from 2 to 7 carbon atoms and an aryl group having from 6 to 10 carbon atoms;

10 wherein the amino group moiety of the amino group, aminoalkyl group, aminocycloalkyl group and alkylamino group of the [substituent group 1-2] may be protected with a protecting group, and also may have 1 or 2 of alkyl groups having from 1 to 6 carbon atoms (may have 1 or more groups of 1 or more species selected from the group of groups consisting of hydroxy group, a halogen atom, and an alkoxy group and alkylthio group having from 1 to 6 carbon atoms) as the  
15 substituent, and also, an amino acid, a dipeptide or a polypeptide consisting of 3 to 5 amino acids may be bonded thereto.

3. The compound, a salt thereof, or a solvate thereof described in claim 2, wherein R<sup>1</sup> is a nitrogen-containing heterocyclic group which may have a substituent.

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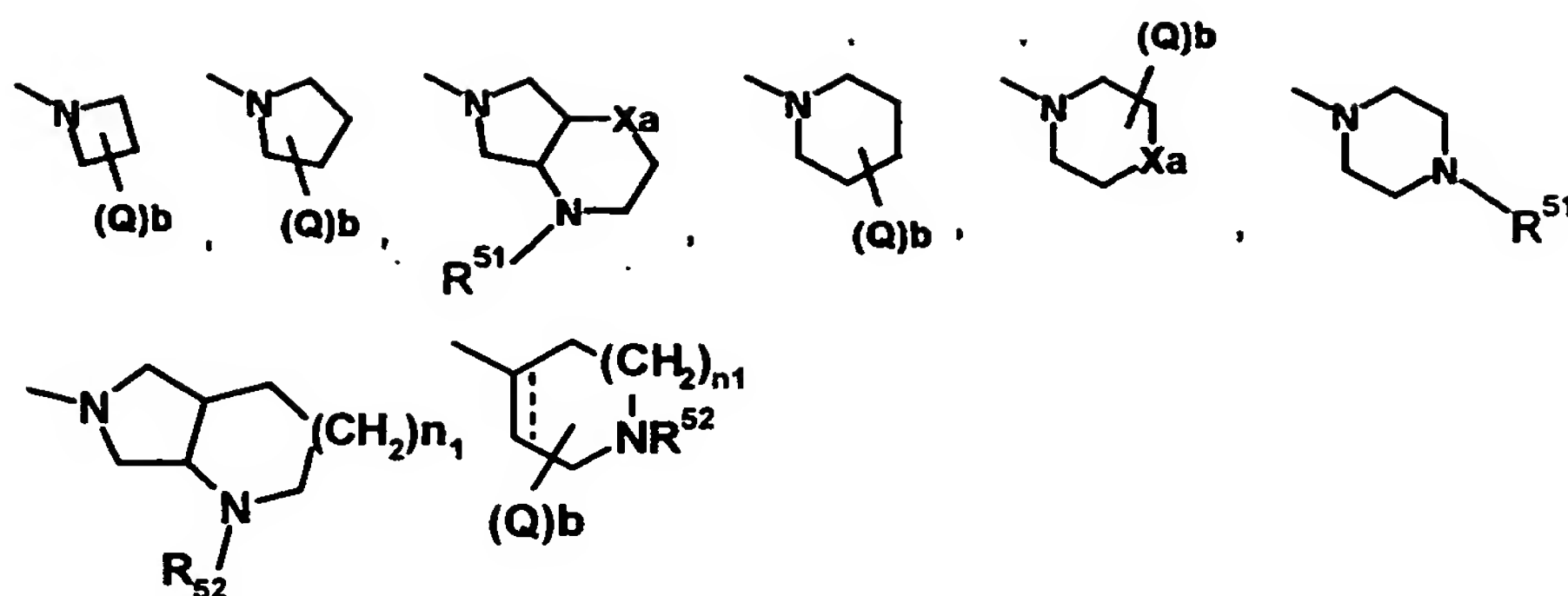
4. The compound, a salt thereof, or a solvate thereof described in claim 3, wherein R<sup>1</sup> is a nitrogen-containing heterocyclic group which may have a substituent, and said nitrogen-containing heterocyclic group is a saturate or partially saturated nitrogen-containing heterocyclic group.

25

5. The compound, a salt thereof or a solvate thereof described in claim 4, wherein R<sup>1</sup> is a group represented by the following formula;

[Formula 74]





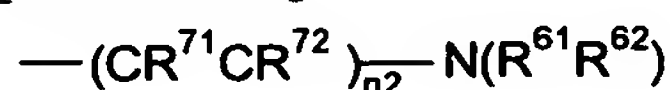
[in the formula, Xa means oxygen atom, sulfur atom, a substituent or NR<sup>52</sup>,

R<sup>51</sup> and R<sup>52</sup> each independently means hydrogen atom, an alkyl group having from 1 to 6 carbon

5 atoms, a halogenoalkyl group having from 1 to 6 carbon atoms or a cycloalkyl group having from 3 to 6 carbon atoms,

the substituent Q means a substituent represented by the following formula,

[Formula 75]



10 b means an integer of 0, 1 or 2,

n1 means an integer of 0 or 1,

n2 means an integer of 0, 1 or 2,

R<sup>61</sup> and R<sup>62</sup> each independently means hydrogen atom, an alkyl group having from 1 to 6 carbon atoms or a halogenoalkyl group having from 1 to 6 carbon atoms, or a group derived from an

15 amino acid, a dipeptide or a polypeptide consisting of 3 to 5 amino acids,

R<sup>71</sup> and R<sup>72</sup> each independently means hydrogen atom, an alkyl group having from 1 to 6 carbon atoms, a halogenoalkyl group having from 1 to 6 carbon atoms, a hydroxyalkyl group having from 3 to 6 carbon atoms, an aminoalkyl group having from 1 to 6 carbon atoms, an alkoxyalkyl group having from 2 to 12 carbon atoms, a cycloalkyl group having from 3 to 6 carbon atoms, a phenyl

20 group which may have a substituent or a heteroaryl group having from 3 to 10 carbon atoms which may have a substituent,

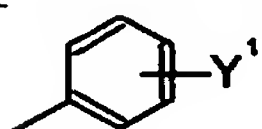
and the dotted line means that said binding region may form a double bond].

6. The compound, a salt thereof, or a solvate thereof described in any one of claims 1  
25 to 5, wherein R<sup>2</sup> is an aryl group having from 6 to 10 carbon atoms, which may have a substituent, or a monocyclic, bicyclic or spiro cyclic heterocyclic group having from 2 to 10 carbon atoms

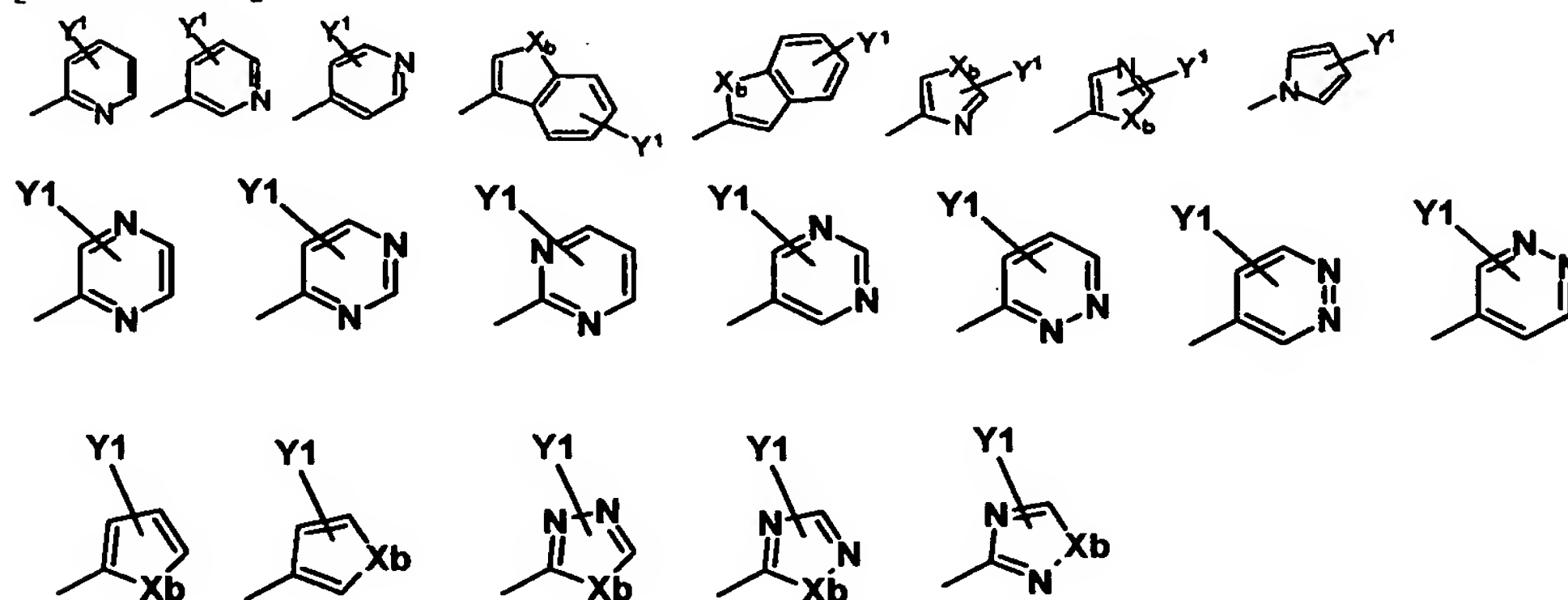
(contains from 1 to 4 hetero atoms of 1 or more species selected from the group consisting of nitrogen atom, oxygen atom and sulfur atom).

7. The compound, a salt thereof, or a solvate thereof described in claim 6, wherein  $R^2$  is a group represented by the following formula;

[Formula 76]



[Formula 77]

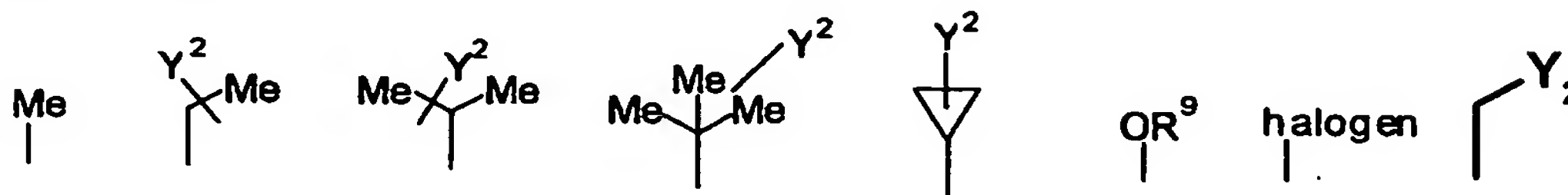


(in the formula,  $X_b$  means oxygen atom, sulfur atom, a substituent or  $NR^8$ , wherein  $R^8$  means hydrogen atom, an alkyl group having from 1 to 6 carbon atoms or a halogenoalkyl group having from 1 to 6 carbon atoms, and the substituent  $Y^1$  has the same meaning as described in the aforementioned [substituent group 2-2]).

8. The compound, a salt thereof, or a solvate thereof described in claim 7, wherein  $R^3$  is a halogen atom, amino group, hydroxy group, mercapto group, an alkyl group having from 1 to 4 carbon atoms which may have a substituent, an alkoxy group having from 1 to 6 carbon atoms which may have a substituent, an alkylthio group having from 1 to 6 carbon atoms, an acyl group having from 2 to 5 carbon atoms or an alkoxycarbonyl group having from 2 to 5 carbon atoms; wherein the amino group among them may have 1 or 2 groups, as the substituent, selected from the group consisting of formyl group, an alkyl group having from 1 to 6 carbon atoms, a cycloalkyl group having from 1 to 6 carbon atoms, an aryl group having from 6 to 10 carbon atoms, a heteroaryl group having from 3 to 10 carbon atoms, an acyl group having from 2 to 5 carbon atoms and an alkoxycarbonyl group having from 2 to 5 carbon atoms, and when said amino group has 2 substituents, they may be bonded together to form a cyclic structure.

9. The compound, a salt thereof, or a solvate thereof described in claim 7, wherein R<sup>3</sup> is a group represented by the following formula;

[Formula 78]



(in the formula, R<sup>9</sup> means hydrogen atom, an alkyl group having from 1 to 6 carbon atoms, a cycloalkyl group having from 3 to 7 carbon atoms, an aryl group having from 6 to 10 carbon atoms, an aralkyl group having from 7 to 12 carbon atoms or an aromatic heterocyclic group, and the substituent Y<sup>2</sup> means amino group, hydroxy group, mercapto group, a halogen atom, an alkoxy group having from 1 to 6 carbon atoms, an alkylthio group having from 1 to 6 carbon atoms, an acyl group having from 2 to 5 carbon atoms or an alkoxycarbonyl group having from 2 to 5 carbon atoms, wherein the amino group among them may have 1 or 2 groups, as the substituent, selected from the group consisting of formyl group, an alkyl group having from 1 to 6 carbon atoms, a cycloalkyl group having from 1 to 6 carbon atoms, an aryl group having from 6 to 10 carbon atoms, an aromatic heterocyclic group, an acyl group having from 2 to 5 carbon atoms and an alkoxycarbonyl group having from 2 to 5 carbon atoms, and when said amino group has 2 substituents, they may be bonded together to form a cyclic structure).

10. The compound, a salt thereof, or a solvate thereof described in claim 7, wherein R<sup>3</sup> is a group represented by the following formula;

[Formula 79]



(in the formula, R<sup>9</sup> means hydrogen atom, an alkyl group having from 1 to 6 carbon atoms, a cycloalkyl group having from 3 to 7 carbon atoms, an aryl group having from 6 to 10 carbon atoms, an aralkyl group having from 7 to 12 carbon atoms or an aromatic heterocyclic group, and the substituent Y<sup>2</sup> means amino group, hydroxy group, mercapto group, a halogen atom, an alkoxy group having from 1 to 6 carbon atoms, an alkylthio group having from 1 to 6 carbon atoms, an

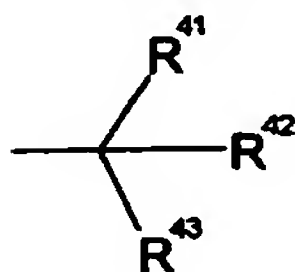
acyl group having from 2 to 5 carbon atoms or an alkoxycarbonyl group having from 2 to 5 carbon atoms, wherein the amino group among them may have 1 or 2 groups, as the substituent, selected from the group consisting of formyl group, an alkyl group having from 1 to 6 carbon atoms, a cycloalkyl group having from 1 to 6 carbon atoms, an aryl group having from 6 to 10 carbon atoms, an aromatic heterocyclic group, an acyl group having from 2 to 5 carbon atoms and an alkoxycarbonyl group having from 2 to 5 carbon atoms, and when said amino group has 2 substituents, they may be bonded together to form a cyclic structure).

11. The compound, a salt thereof, or a solvate thereof described in claim 9 or 10, wherein  $Y^2$  is a halogen atom, alkoxy group having from 1 to 6 carbon atoms, hydroxy group or amino group, and  $R^9$  is hydrogen atom, an alkyl group having from 1 to 6 carbon atoms, a cycloalkyl group having from 3 to 7 carbon atoms, an aryl group having from 6 to 10 carbon atoms or an aralkyl group having from 7 to 12 carbon atoms.

12. The compound described in claim 9 or 10, wherein  $Y^2$  is fluorine atom, chlorine atom, methoxy group or hydroxy group, and  $R^9$  is hydrogen atom, methyl group, ethyl group or isopropyl group.

13. The compound, a salt thereof, or a solvate thereof described in any one of claims 1 to 12, wherein  $R^4$  is an alkyl group having from 1 to 4 carbon atoms which may have a substituent, or a compound represented by the following formula;

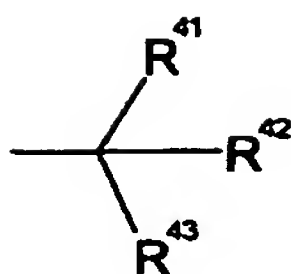
[Formula 80]



( $R^{41}$ ,  $R^{42}$  and  $R^{43}$  are as defined in the foregoing).

14. The compound, a salt thereof, or a solvate thereof described in any one of claims 1 to 12, wherein  $R^4$  is a substituent having a structure represented by the following formula;

[Formula 81]



( $R^{41}$ ,  $R^{42}$  and  $R^{43}$  are as defined in the foregoing).

15. A compound, a salt thereof, or a solvate thereof, which is a compound represented  
 5 by the formula (I) having a combination in which  
 $R^2$  is an aryl group;  
 $R^1$  is a cyclic substituent having a saturated or partially saturated substituent;  
 $R^3$  is an alkyl group having from 1 to 3 carbon atoms;  
 $R^4$  is a substituent selected from the group consisting of (1) an alkyl or alkylene group having from  
 10 2 to 5 carbon atoms which may take a branched chain form, (2) a cyclic alkyl group having 3 or 4  
 carbon atoms, (3) an alkyl group having from 2 to 5 carbon atoms having fluorine atom or chlorine  
 atom, which may take a branched chain form, (4) an alkoxyalkyl group having from 2 to 5 carbon  
 atoms, and (6) a substituted benzyloxyethyl group which may have 1 or 2 methyl groups on the  
 ethyl group.

15

16. A compound, a salt thereof, or a solvate thereof, which is a compound represented  
 by the formula (I) having a combination in which  
 $R^2$  is an aryl group;  
 $R^1$  is a saturated or partially saturated nitrogen-containing heterocyclic group substituted with  
 20 amino group, an alkylamino group or a dialkylamino group;  
 $R^3$  is an alkyl group having from 1 to 3 carbon atoms;  
 $R^4$  is a substituent selected from the group consisting of (1) an alkyl or alkylene group having from  
 2 to 5 carbon atoms which may take a branched chain form, (2) a cyclic alkyl group having 3 or 4  
 carbon atoms, (3) an alkyl group having from 2 to 5 carbon atoms having fluorine atom or chlorine  
 25 atom, which may take a branched chain form, (4) an alkoxyalkyl group having from 2 to 5 carbon  
 atoms, and (6) a substituted benzyloxyethyl group which may have 1 or 2 methyl groups on the  
 ethyl group.

17. A compound, a salt thereof, or a solvate thereof, which is a compound represented by the formula (I) having a combination in which

R<sup>2</sup> is phenyl group;

R<sup>1</sup> is pyrrolidinyl group substituted with amino group, an alkylamino group or a dialkylamino group;

R<sup>3</sup> is methyl group;

R<sup>4</sup> is a substituent selected from the group consisting of ethyl group, isopropyl group, normal butyl group, tertiary butyl group, cyclopropyl group, propylen-2-yl group, methoxymethyl group, fluoromethyl group, 2-chloroethyl group, 2-hydroxyethyl group, 1,1-dimethyl-2-hydroxyethyl group, 2-benzyloxyethyl group, 2-benzyloxy-1,1-dimethyl-ethyl group and 2-(4-fluorophenylmethyl)oxyethyl group.

18. A compound, a salt thereof or a solvate thereof, which is a compound represented by the formula (I) having a combination in which

R<sup>2</sup> is phenyl group;

R<sup>1</sup> is pyrrolidinyl group substituted with amino group, methylamino group or dimethylamino group;

R<sup>3</sup> is methyl group;

R<sup>4</sup> is a substituent selected from the class consisting of ethyl group, isopropyl group, normal butyl group, tertiary butyl group, cyclopropyl group, propylen-2-yl group, methoxymethyl group, fluoromethyl group, 2-chloroethyl group, 2-hydroxyethyl group, 1,1-dimethyl-2-hydroxyethyl group, 2-benzyloxyethyl group, 2-benzyloxy-1,1-dimethyl-ethyl group and 2-(4-fluorophenylmethyl)oxyethyl group.

19. A medicine which comprises the compound, a salt thereof, or a solvate thereof described in any one of claims 1 to 18.

20. An infection treating agent which comprises the compound, a salt thereof, or a solvate thereof described in any one of claims 1 to 18.

21. An antifungal agent which comprises the compound, a salt thereof, or a solvate thereof described in any one of claims 1 to 18.

22. A method for treating an infection, which uses the compound, a salt thereof, or a  
5 solvate thereof described in any one of claims 1 to 18.

23. Use of the compound, a salt thereof or a solvate thereof described in any one of claims 1 to 18 for infection treatment.